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Bitelli

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(54) **HEAVY VEHICLE FOR BREAKING UP
 GROUND WITH RETRACTING AND
 STEERING REAR WHEELS**

3,792,745 * 2/1974 Files 180/9.46
 4,029,165 * 6/1977 Miller et al. 180/6.48
 4,120,507 * 10/1978 Miller 280/8.40
 4,387,814 * 6/1983 Beduhn et al. 212/195

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* cited by examiner

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(58) Field of Search 180/9.44, 9.46,
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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,664,448 * 5/1972 Hudis 180/9.46

(57) **ABSTRACT**

A machine for breaking up ground including, a frame supported by at least one pair of front wheels or tracks and by at least one pair of rear wheels or tracks. A driver's cab is made out of said frame and a means of breaking up the ground is connected to the frame. A traction system is supported by the frame and is for rotating one or more of the wheels or tracks. At least one rear wheel or track has a horizontal axis belonging to a chassis that is integral with said frame. The chassis is provided with at least one first actuator that works with maneuvering systems accessible from the driver's cab to rotate the rear wheel or track around a vertical axis while turning the front wheels or tracks of the machine.

11 Claims, 6 Drawing Sheets

